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ECHO Telementoring for Pain, Palliative Care, and Opioid Management: Progress, Challenges, and Future Goals

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a large randomized controlled trial conducted by Sessler et al. demonstrate that regional anesthesia (paravertebral block) does not decrease cancer recurrence in women who have had mastectomies for nonmetastatic breast cancer [10].

Grandhi and Perona optimistically concluded that "it might be feasible, and even advisable, to use intravenous lidocaine during surgical resection of tumors" [1]. However, we would cautiously advise against the routine use of lidocaine intravenously during cancer surgery with the objective of reducing cancer recurrence until data from large randomized controlled trials are available. In our opinion, the principal merit of this review is that it provides an integrated and synthesized overview of the antitumoral effects of local anesthetics in cancer biology and will help inform future studies of the relationship between local anesthetics and cancer recurrence.

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COMMENTARY

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ECHO Telementoring for Pain, Palliative Care, and Opioid Management: Progress, Challenges, and Future Goals

Introduction

The article in this issue of *Pain Medicine* by Flynn et al., "Pain Management Telementoring, Long-term Opioid Prescribing, and Patient-Reported Outcomes," demonstrates patient-level reductions in opioid doses in patients whose clinicians actively participate in pain telementoring as compared with patients whose clinicians participate in pain telementoring at a low level. These outcome data reflect the growing body of evidence that telementoring may improve opioid prescribing and pain management practices.

Project ECHO (Extension for Community Healthcare Outcomes) began at the University of New Mexico (UNM) Health Sciences Center in 2003, to improve specialty care access for New Mexico's medically underserved populations. Using videoconferencing technology, subject matter specialists at the "hub" connect to remote primary care clinicians at "spokes" to provide iterative training and mentorship through case-based learning and short lectures. Participating clinicians learn best practices in care, treatment, and prevention of common, complex conditions and increase their knowledge and self-efficacy. Their patients receive quality care near their homes, from their own clinicians, and in a culturally appropriate setting. The four-point ECHO model includes amplification of knowledge through telementoring, case-based learning, best practice sharing, and evaluation of outcomes [1]. The ECHO Institute trains partners around the world on replication of the ECHO model and provides technical assistance so that they use the model effectively to address priority health concerns in their communities. Maintaining fidelity to the model is vital for replicating partners to achieve success and thereby improve the health of their patients [2].

Project ECHO was shaped by educational theories proven effective in specialty training for professionals in the workplace, including deliberate practice, social cognitive theory, and situated learning [3–5]. Mutual learning is crucial in the ECHO model: All participants are viewed as experts contributing knowledge, leading to better patient care and health system improvement, which helps to break down hierarchies that can exist among medical professionals. The ECHO model fosters peer-to-peer mentoring and knowledge networks, creating an "all-teach, all-learn" environment. Through this innovative approach, local clinicians can enhance their knowledge and competence with peers and mentors in a community of practice.

ECHO's Impact

Project ECHO is reducing health disparities in the United States and around the world. Medical specialists are maldistributed by specialty, location, and race/ethnicity. The ECHO model aims to "democratize" specialists' knowledge, given the paucity of medical specialists worldwide to meet the needs of those living in rural and underserved areas [6]. Today, more than 320 "hub" sites in 49 US states and 38 countries are using the ECHO model to address >70 conditions and topics in their local communities. In addition to medically focused ECHO programs, this approach is now being used in the fields of child well-being, education at all levels, first responder and emergency response, environmental issues, immigrant welfare, and law enforcement. Over 280 peer-reviewed articles have documented the effectiveness of the ECHO model for improving clinician knowledge and self-efficacy, catalyzing practice change, and reducing variations in care. Based on Moore's levels of improved outcomes, the ECHO model's impact ranges from providers' participation (level 1) to community-level outcomes (level 7) [7].

There are 19 ECHO-related articles demonstrating improved patient outcomes.

The Dual Opioid and Pain Epidemics

The opioid crisis is considered by many to be the most urgent public health issue since the HIV epidemic, and rural communities are disproportionately affected [8]. The Centers for Disease Control and Prevention (CDC) reported that patients in rural counties were 87% more likely to receive a prescription for opioids than patients in urban areas. As a result, the rates of opioid abuse, injection drug use, and overdose are higher in rural communities [9]. Synchronistically, chronic pain is recognized as the leading cause of disease burden and disability across the world, in both industrialized countries and developing nations [10].

The opioid epidemic has underscored the lack of training on comprehensive pain management for both pre- and postlicensure clinicians [11,12]. The connections among chronic pain, substance use, and behavioral health disorders are both complex and interdependent. Education for clinicians must be holistic and emphasize the importance of treating all three conditions simultaneously for improved patient outcomes. To effectively manage patients suffering from chronic pain *without* first using opioid analgesics, primary care clinicians need a solid understanding of both nonpharmacological and pharmacological nonopioid treatment options that are evidenced-based or evidence-guided for common pain conditions. Project ECHO telementoring programs are a cost-effective and efficient method for disseminating and supporting such an understanding.

ECHO Pain and Opioid Telementoring

For well over a decade, the ECHO model has been leveraged to address the challenge of the opioid crisis across state, regional, and national contexts. In 2005, New Mexico led the country in unintentional opioid overdose deaths. The UNM Integrated Addictions and Psychiatry teleECHO Program (IAP) began as a response to this statewide crisis. In 2008, ECHO Pain began to leverage scarce pain specialty resources throughout New Mexico and to manage the very large numbers of patients waiting to be seen at the university's headache and pain clinics. It was during this time that influential government and medical entities recognized that undertreatment of chronic pain and behavioral health issues, including substance use disorder and depression, were engines driving the burgeoning number of national opioid overdose deaths. First the Department of Defense (DOD) (2010) and then the Institute of Medicine (2011) wrote reports exploring the crisis of pain in America and its impact on troop readiness, public health, and medical practice [13,14]. Each issued statements promoting the need for more resources for patients and primary care clinicians, safer opioid prescribing, and alternative approaches to treating chronic pain. Both emphasized the need for
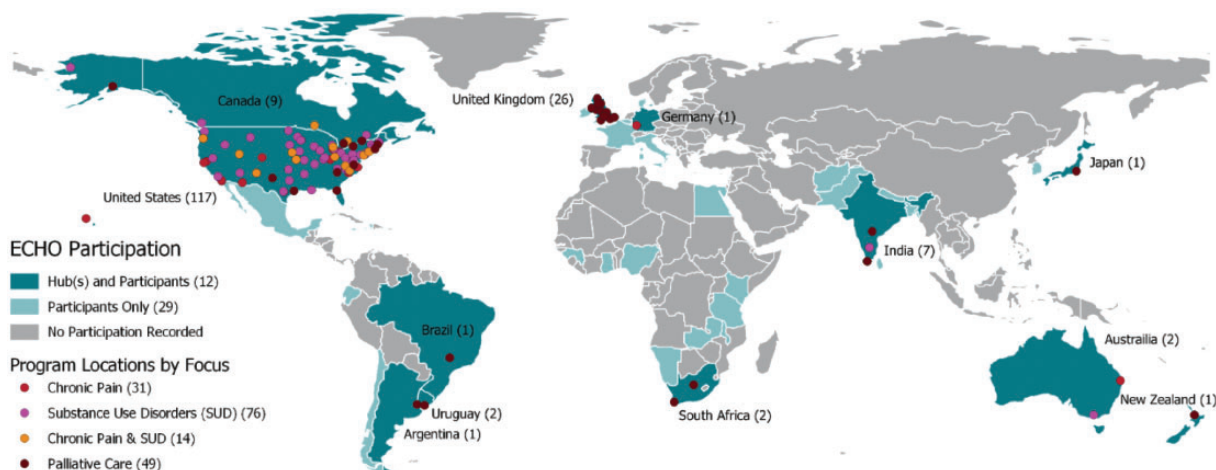
Figure 1. Extension for Community Healthcare Outcomes pain, opioid, and palliative care locations. To see the database used for map creation: https://echo.unm.edu/doc/ECHOPainAndOpioidTelementoringProgramList.xlsx.

accessible, comprehensive clinician education in pain management and substance use disorder.

In 2012, ECHO Pain collaborated with the US Army and US Navy to help create Army and Navy Pain teleECHO programs. In 2014, the Ministry of Health in Toronto, Canada, recognized the capability of ECHO Pain and Opioid Stewardship to address the needs of citizens living in very rural locations across the province of Ontario. Canada now has nine different opioid and pain teleECHO programs across four provinces. Great Britain, including Ireland, has 29 teleECHO programs in palliative pain care, substance use disorder, and medication-assisted treatment, including a Prison ECHO for substance use in Northern Ireland. And this year, the Ministry of Health in India has adopted ECHO as part of the national health care system. India currently has 51 teleECHO programs, three of which focus on chronic pain and substance use disorder. In 2019, the Health and Human Services Interagency Task Force on Pain Management followed up with recommendations suggesting that Project ECHO may be a valuable resource for clinicians to improve pain care education [15].

Impact of ECHO Pain, Palliative Care, and Opioid Programs Globally

There are now 160 pain, palliative care, and opioid teleECHO programs at "hubs" in the United States and 12 other countries. Many clinicians also participate in ECHO telementoring from countries where there are no ECHO "hubs." Some teleECHO programs cover pain and opioid use disorder together, whereas other programs are more specialized. Common program names include Chronic Pain, Pediatric Pain, Palliative Pain, Opioid Stewardship, Medication-Assisted Treatment, Community Health Worker Training in Opioid Management, and Substance Use in the Perinatal Period.

The ECHO Institute has developed innovative tools and methods to support the replication of ECHO pain and opioid programs, as well as for the use of the ECHO model for other conditions around the world. Based on proven theories of adult learning that have shaped the ECHO model more generally, these include MOCK ECHO, the Anatomy of an ECHO, Facilitation Scorecard, and Videoconferencing Etiquette [16]. These ECHO tools allow replicating partners to understand items such as the importance of empathy when serving as a "hub" facilitator, as well as the importance of spoke participation and bidirectional learning. All ECHO partners replicating the ECHO model also share curricula and best practices developed for their programs with each other, utilizing the online Project ECHO Resource Library (PERL), a digital library curated and maintained by the ECHO Institute (Figure 1).

ECHO Pain and Opioid Curriculum

New Mexico and Replicating Partners

By serving as an educational platform that promotes best practices and reduces variation in care, pain, palliative care, and opioid teleECHO programs have allowed for the widespread dissemination of many pain management and opioid use disorder protocols. In 2012, the state of New Mexico passed legislation mandating that every New Mexico clinician with prescriptive authority receive five hours of pain and safe opioid training. ECHO Pain was used as a virtual platform to offer these credit hours, and a curriculum was created by New Mexico and the Indian Health Service, which also adopted this mandate [17].

In addition to regularly scheduled, virtual teleECHO sessions, many opioid and medication-assisted treatment teleECHO programs have special event days where they
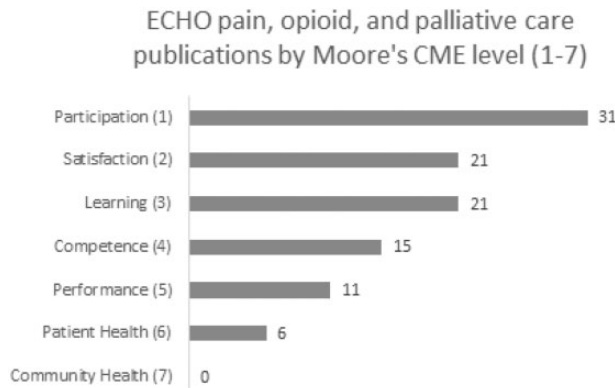
Figure 2. Extension for Community Healthcare Outcomes pain, opioid, and palliative care publications by Moore's Continuing Medical Education level.

host live, synchronous, four-hour buprenorphine trainings for their "spoke" participants, with the goal of facilitating clinician applications, enabling participants to apply for their DATA waivers for training and care for patients with opioid use disorder [18]. Because ECHO Pain and Opioid curricula are free, provide no-cost continuing education credits, and are available for clinicians worldwide to share and disseminate, it is easy to ensure quality programming at every teleECHO session. The Veterans Affairs and DOD have also created a pain curriculum through the Joint Pain Education Program (JPEP), which allows them to use much of their pain and safe opioid curriculum as part of their Army and Navy Pain ECHO weekly programming [19].

ECHO Pain and Opioid Research

There have been 48 peer-reviewed publications on Project ECHO related to pain, palliative care, and opioid management throughout the world. Using the Moore's level of outcomes, the vast majority of articles have been published on provider participation, self-efficacy, knowledge improvement, and competence (levels 1 through 4). Eleven articles demonstrate practice change, reflected by Moore's level 5, and six articles demonstrate improved patient outcomes (Moore's level 6). The article by Flynn et al. included in this month's *Pain Medicine* edition demonstrates that clinicians participating in telementoring discontinued long-acting opioid therapy significantly more than clinicians not participating in telementoring.

In 2014, the UNM Pain Center and ECHO Pain demonstrated that lowered doses of opioid analgesics and benzodiazepines dispensed from the New Mexico Board of Pharmacy were associated with mandated statewide ECHO and live trainings on pain and safe opioid prescribing [20]. Two Veterans Affairs Health Care System studies have also shown patient-level outcomes. Frank et al. demonstrated that when clinicians participate in SCAN-ECHO, their patients have increased referrals to

rehabilitation and increased use of nonopioid medications for pain [21]. Vaughn et al. showed that SCAN-ECHO Pain Management can be used successfully to lower opioid levels in conjunction with other modalities [22]. Similarly, Katzman and Qualls found that Army and Navy clinicians who participated in ECHO Pain, as compared with their colleagues who did not participate in ECHO Pain, had patients on significantly fewer opioid analgesics, on lower doses of opioid analgesics, and co-prescribed fewer opioid analgesics and benzodiazepines [23]. Finally, a very recent analysis from ECHO Pain and Opioid Stewardship in Toronto, Canada, also demonstrated lower patient opioid analgesic levels after six months and one year of their clinicians participating in the ECHO program (Figure 2) [24].

Challenges

There has been tremendous growth of ECHO pain, opioid, and medication-assisted treatment programs globally over the last decade. Telementoring for chronic pain and opioid management has allowed clinicians practicing in remote and underserved areas the opportunity to present real, de-identified patients to a network of specialists and share best practices. This has increased their clinical acumen in safe pain care.

Frequently encountered challenges to ECHO telementoring include the difficulty that clinicians have in finding the time during their clinical workday to participate in such programs. This is especially true in the United States, where a fee-for-service model is still the economic driver of patient care. Fortunately, the US Congress passed the ECHO Act in 2016 requiring research inquiry into the sustainability of the ECHO model. A new ECHO Act of 2019 has been introduced to direct the Department of Health and Human Services to establish a grant program to evaluate, develop, and expand ECHO capacity in the United States.

Research regarding patient- and community-level outcomes is also very challenging for ECHO-related studies. Due to its iterative nature and to the often urgent, low-income, or resource-constrained environments in which it is utilized, the ECHO model does not easily support randomized controlled trials. Because iterative education is the hallmark of ECHO, the restriction of education to one clinician group even for a short period of time when medical knowledge is moving at such a fast pace is difficult [25]. It would be unethical to ask clinicians in rural communities to participate in a control group related to clinician education and real-time case-based consultation where patients are directly affected by the results and need timely management. Even participation in a step-wedge design is time-intensive and very expensive. The ECHO movement has performed many patient-level studies demonstrating that clinicians who participate in ECHO (vs clinicians who do not participate in ECHO) have improved patient outcomes [26,27].

Future Goals

Two months ago, the ECHO Institute began an innovative first responder ECHO to train fire fighters, paramedics, and law enforcement about the opioid crisis, pain management, and how to better manage situations such as multiple naloxone administrations in a single household in one week. An assessment of first responders' training needs resulted in the provision of curriculum and avenues to discuss first responder resiliency and self-care, such as identifying post-traumatic stress disorder, compassion fatigue, and preventing self-harming behaviors in oneself or a colleague. The goal is to spread this ECHO to other regions of the country where first responders need assistance.

The Accreditation Council for Graduate Medical Education is currently piloting the ECHO model for enhancing faculty development in patient safety and quality improvement projects in emergency medicine, internal medicine, and neurosurgery residency programs. It is the author's opinion that ECHO could also be used for both prelicensure and residency education, especially related to chronic pain and opioid substance use disorder.

Clinical and nonclinical ECHO programming is being planned or launched to address the needs of early childhood and K-12 educators, community health workers, community teams addressing human trafficking, and the relationships between law enforcement and vulnerable populations, palliative care and geriatric providers, family service workers, sexual assault forensic examiners, and the like. A global digital platform is being developed to rapidly scale the growth of the ECHO movement and share its tools and approaches with potential users.

ECHO telementoring for pain, palliative care, and opioid programs has spread throughout the globe over the past 14 years. These programs have allowed primary care clinicians to share best practices and manage their patients efficiently and effectively. The continued success of these telementoring programs will be determined by specialists and their interest in building more networks in medically underserved areas.

Supplementary Data

Supplementary data are available at *Pain Medicine* online. *Supplementary Data include all pain, palliative care and opioid publications. They are available at* Pain Medicine online at: https://echo.unm.edu/doc/ECHOPainBibliography 11122019.docx

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COMMENTARY

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Unravelling the Complex Regional Pain Syndrome Enigma

Sir Winston Churchill coined the phrase "a riddle, wrapped in a mystery, inside an enigma" to describe the unpredictable nature of Russia's tactics in the Second World War. It would seem that we have reached a similar level of ambivalence in a climate of changing diagnostic criteria, uncertain etiology, and unproven treatments in regards to complex regional pain syndrome type 1 (CRPS-1). By nature, such entities evoke fear and unease in one's mind. The question of how to manage these patients is a current conundrum. For this reason, the diagnosis and management of CRPS-1 deserves much greater care and scrutiny by the wider medical community. In recent times, it would seem that the overwhelming suffering and limb pain in injured workers and poorly chosen surgical patients have taken on almost epidemic proportions. Best estimates indicate a rate of 26.2 per 100,000 person-years, with particular risk to orthopedic surgery patients [1].